DOCUMENT RESUME

ED 098 740 EC 070 325

AUTHOR Cone, John D.; And Others
TITLE Training Behavior Modifiers: Videotape Self-Monitoring Versus Remote Auditory Prompting. Draft.
NOTE 21p.

EDRS PRICE MF-$0.75 HC-$1.50 PLUS POSTAGE
DESCRIPTORS Aural Stimuli; *Behavior Change; *Exceptional Child Research; Institutionalized (Persons); *Institutional Personnel; *Mentally Handicapped; Performance Factors; *Training Techniques; Video Tape Recordings

ABSTRACT

The separate and comparative effectiveness of two procedures, remote auditory prompting (RAP) and videotape self-monitoring (VSM), for training 14 adult aides to use behavior modification with institutionalized retarded children were examined. A two-group, multiple baseline design with baseline, training, and followup phases was employed with seven different trainee behaviors (commanding, physical prompting, general verbal praising, touch reinforcing, materially reinforcing, specific verbal praising, and timing out). Remote auditory prompting was accompanied by increases in five of these behaviors. Increases in three behaviors and a decrease in one behavior occurred when the videotape self-monitoring procedure was used. Overall, increases were greater using the RAP procedure. Retention of training phase levels during three followup sessions was comparable for both RAP and VSM. A second study yielded similar results. (Author/LH)

BEST COPY AVAILABLE

ED 098740

Training Behavior Modifiers: Videotape Self-Monitoring Versus Remote Auditory Prompting[1, 2]

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

John D. Cone

West Virginia University

and

John A. Millhouse, Peter Berty, and Garrett E. Moran

Colin Anderson Center

Training behavior modifiers has been conceptualized in terms of the three-components (S^D-R-S^R) of the operant paradigm (Cone and Sheldon, 1973). Within such a framework the logical first step in programmatic efforts to train behavior modifiers would be to define relevant trainee behaviors. Such behaviors would be those things a trainee does antecedent and consequent to the actions of a person who is the target of some intervention effort.

Once the relevant trainee behaviors (Rs) have been defined, the next step would be to develop reliable discriminative stimuli (S^Ds) to set the occasion for their occurrence. Finally, attention could be directed toward programming consequences (S^Rs) for strengthening and maintaining the trainee behaviors.

Many studies in the parent-training (cf. Cone & Sloop, in press), teacher-training (e.g., Madsen, Becker, and Thomas, 1968) and aide-training (e.g., Pomerleau, Bobrove, and Smith, 1973) areas have been conducted, at least implicitly, within the above framework. Usually, however, variables in several of the three categories are manipulated simultaneously, making it difficult to describe functional relationships between trainer and trainee behaviors unambiguously. An effective technology for training behavior

EC 070 325

BEST COPY AVAILABLE

modifiers may develop more rapidly from systematic analyses of a trainee's behavior in terms of the separate components of the operant paradigm. Particular emphasis should be given to the study of antecedent and consequent events with efforts at describing functional relationships between them and important trainee responses.

In an earlier study (Cone & Sheldon, 1973) an attempt was made to teach aides to use certain behavior modification procedures in working with retarded children in a residential training facility. Eight trainee behaviors were developed from a task analysis of the skills necessary to teach self-help behaviors to such children. Three antecedent (S^D) and five consequent (S^R) behaviors were defined.

Attention was then directed toward setting the occasion for trainees to perform these behaviors consistently while working with individual children. Formal or informal verbal instructions have generally been the preferred form of S^D in behavior modifier training. Such instructions have varied in their specificity (general principles to specific techniques), and their temporal distance from the situation in which they were to be followed. Moreover, instructions have been given in situations differing considerably from the location in which the trainee is to do the actual behavior modifying (e.g., lectures in a classroom vs. instructions on the ward, in the home, or in the training room). Generally, instructional S^Ds have been semantically, temporally, and spatially remote from the occurrence of the trainee behaviors they were designed to occasion. An important correlate of such remoteness is that these S^Ds have also been distant from their consequences, and thus not subjected to immediate self-corrective feedback. An effective training technology may require more contiguity between the instructor's discriminative stimuli and the responses he wishes to shape.

A procedure for providing increased contiguity was developed and eval-

BEST COPY AVAILABLE

uated in the earlier paper. Attendants were instructed in the use of the eight trainee behaviors while actually working with individual children. Instructions were provided via a wireless FM transmitting microphone and a small receiver worn by the trainee. Remote auditory prompting (RAP) in this manner successfully accelerated trainee behaviors over baseline frequencies. A single group, time series design with four phases was used to demonstrate the usefulness of RAP.

The RAP procedure, while apparently successful, requires the presence of an experienced behavior modifier to provide the prompts. A less expensive procedure would be more desirable. Thomas (1971) suggested videotaping trainee performances and having the trainee: (a) view the tape, (b) record, and (c) graph specific behaviors at a later time. Thomas, Saudargas (1972), and Rule (1972) have all reported some success in training teachers with this technique.

Such a videotape self-monitoring (VSM) procedure has several obvious practical advantages. It is more economical than RAP because a trainee can tape his own session for later observation and recording of specific behaviors. The tape also preserves a permanent record of the session for later viewing by the instructor or trained observers to permit continuous monitoring of training progress. Of course, if instructors and observers viewed every tape the economic superiority of VSM over RAP would be eliminated.

However, while the VSM procedure reduces some of the remoteness typical of most behavior modification instruction, it is clearly less direct than RAP. To the extent that contiguity is associated with effectiveness one would expect RAP to result in greater increases in trainee behaviors.

In order to provide evidence for some of the questions implied in the above, a study was undertaken to: (a) assess the effects of RAP in a more

BEST COPY AVAILABLE

controlled design than that used in Cone & Sheldon (1973), (b) assess the effectiveness of VSM for training aides to work with institutionalized retarded children and, (c) compare the relative effectiveness of RAP and VSM.

Method

Subjects

Fourteen newly employed houseparents (10 females, 4 males) in a state residential training facility for retarded children participated as trainees. Mean ages and years of education were 34.7 and 11.4, respectively, for the females; 20.8 and 12.0, for the males.

Trainee behaviors

Two antecedent and five consequent behaviors were defined. The antecedents were: (a) commanding (e.g., "Jimmy, raise your arm."), and (b) physical prompting (e.g., manually raising Jimmy's arm for him). The consequents were: (a) general verbal praising (e.g., "That's good." "Jimmy, you're a good boy."); (b) specific verbal praising (e.g., "That's good arm-raising." "I like the way you raised you arm."); (c) touch reinforcing (e.g., patting or touching the child, usually accompanying verbal praise; (d) materially reinforcing (e.g., giving the child an M & M); and (e) timing out (contingent turning away or looking down following an unwanted response).

Design

A two-group, multiple-baseline design was used, with random assignment of trainees to groups. After three baseline sessions, three behaviors began receiving RAP (Group I) or VSM (Group II) training. The same three behaviors were trained in each group. The remaining four behaviors continued to be baselined for three additional sessions. At the beginning of the seventh session, training on the first three behaviors ceased and VSM and RAP were applied to the four remaining behaviors of Groups I and II, respectively.

Training on these behaviors ceased and follow-up was conducted in sessions ten through twelve.

Observation Procedure

During all sessions of the study at least two independent observers recorded the frequency of each of the seven behaviors. Observations were made during 15-second intervals paced by a pre-recorded tape which sounded the number of each interval. Data were recorded in an all-or-none manner by marking through the symbol for the behavior in the appropriate interval on the record sheet.

Inter-observer agreement was calculated for scored intervals only. Agreements were divided by agreements plus disagreements separately for all seven behaviors for each session of each trainee. Agreement figures were calculated by five-minute segments, yielding three agreement checks per behavior per session. Averaged over all segments (N = 36) and all trainees (N = 14), agreement values ranged from a mean of 58 to 92% for physical prompting and timing out, respectively. Mean overall agreement was 81.1%.

General Procedure

Before the study all trainees had participated in six class sessions during which the principles of applied behavior analysis were presented. These sessions were conducted as part of the general orientation of new aides to the facility. Immediately prior to the initiation of this study trainees viewed a 35-minute videotape which defined and gave examples of each of the seven behaviors.

Baseline. Each trainee then participated in three 15-minute sessions during which he worked at teaching a randomly designated self-help skill to a child randomly assigned to that particular session. All sessions were conducted in an 8 X 10 foot training room in full view of observers seated behind one-way glass in an adjacent room.

BEST COPY AVAILABLE

Training phase one. Random assignment of trainees to groups immediately followed the last baseline session. During this phase, one group of trainees (N = 8) received RAP for three behaviors (commanding, general verbal praising, and touch reinforcing).

RAP was provided by an experienced behavior modifier located in the observation room. Whenever appropriate, the prompter would speak to the trainee via the wireless microphone, saying such things as "Raise his arm," "Look away," and "Give him candy."

The second group of trainees (N = 6) received VSM during the first training phase for the same three behaviors. While working with a child the trainee's performance was videotaped. Immediately following each session the trainee viewed his videotape and recorded the occurrences of each of the three behaviors. At the end of the tape the trainee summed the frequencies of each behavior and plotted the sums on a graph.

To maximixe the effectiveness of VSM, subjects were trained in its use prior to viewing the first tape of their own performance. Training consisted of: (a) viewing taped definitions and examples of each of the three behaviors, (b) observing and recording the frequency of these behaviors from a tape of another trainee, and (c) discussing the tape with the staff member responsible for VSM training.

The four behaviors not targeted during training phase one continued to be observed and recorded as during baseline.

Training phase two. Following the first training phase subjects in the RAP group were switched to VSM for the four remaining behaviors (physical prompting, timing out, specific verbal praising, and materially reinforcing). Subjects in the VSM group were switched to RAP for these behaviors. Treatment of the first three behaviors was discontinued with the imitation of training phase two, but these behaviors continued to be recorded.

BEST COPY AVAILABLE

Follow-up. Immediately following the third session of training phase two each subject participated in three additional 15-minute sessions. All seven behaviors continued to be recorded, but no prompting or videotaping occurred.

Results

The number of 15-second intervals during which a behavior was observed in each five-minute segment was summed across trainees in each group and divided by eight or six to provide means for each behavior. These means are presented in Table 1 for all three phases of the study.

Insert Table 1 about here

The general effectiveness of the RAP procedure may be observed in Figure 1. Means are plotted by five-minute blocks to permit examination of within-

---

Insert Figure 1 about here

---

session trends. The data for Groups I and II appear in the top and bottom halves of the figure, respectively. As in the previous study, the introduction of RAP was generally accompanied by marked increases in the frequency of the behaviors. Only timing out showed no noticeable change. With the single exception of materially reinforcing, each of the behaviors maintained its training phase level or increased it slightly during follow-up.

The general effectiveness of the VSM procedure may be observed in Figure

---

Insert Figure 2 about here

---

2. The data for Groups II and I now appear in the top and bottom halves of

the figure, respectively. The results do not appear as convincing as they did with the RAP data. With respect to the top three behaviors, one (touch reinforcing) increased slightly over its baseline frequency ($\bar{X}$ = 4.75 to 5.73), general verbal praising remained virtually unchanged ($\bar{X}$ = 6.6 to 7.0), while commanding continued the downward trend initiated in the third baseline session ($\bar{X}$ = 14.5 to 10.8). Two of the bottom four behaviors (physical prompting and specific verbal praising) showed reasonably large increases from baseline to training, whereas materially reinforcing and timing out remained unchanged.

The follow-up data show commanding beginning to stabilize, with general verbal praising and touch reinforcing starting to decrease in the last session. Physical prompting and specific verbal praising appear to maintain or increase their training gains slightly during follow-up, with materially reinforcing and timing out remaining at or slightly below their baseline levels. Thus, VSM seems to have a moderate effect on some behaviors. The effects are not particularly strong nor long-lasting, however.

A direct visual comparison of the RAP and VSM procedures for the first three behaviors is provided by Figure 3. Groups I and II are represented in

---

Insert Figure 3 about here

---

the top and bottom halves of the figure, respectively. Figure 3 is a combination of the top halves of Figures 1 and 2, permitting behavior by behavior comparison of the two procedures. The frequency of commanding decreased over baseline sessions for both groups and continued to do so during training with VSM. With RAP the decline was reversed, however, and an overall increase in frequency resulted ($\bar{X}$ = 10.4 to 12.2). VSM effected slight increases in general verbal praising ($\bar{X}$ = 6.6 to 7.0) and touch reinforcing ($\bar{X}$ = 4.8 to 5.7),

but increases were greater under RAP ($\bar{X}$ = 4.8 to 7.2, and $\bar{X}$ = 2.8 to 5.1, respectively).

Figure 4 permits visual comparison of the two procedures for the remaining behaviors. This figure is a combination of the bottom halves of Figures 1 and 2. Groups II and I are represented in the top and bottom halves of Figure 4, respectively.

RAP was accompanied by increases in all four behaviors, though in two (physical prompting and timing out) the increases were marginal, at best. The most noticeable change occurred in specific verbal praising ($\bar{X}$ = .6 to 5.6). With the exception of physical prompting, increases were greater under RAP than VSM.

It would appear from Table 1 and Figures 3 and 4 that both RAP and VSM performed about equally well in terms of maintenance of training levels during follow-up. With the possible exception of the increase during follow-up for physical prompting under RAP, the behaviors remained relatively unchanged across these two phases.

In summary, of the seven trainee behaviors, five were effectively increased during training under RAP; three, under VSM. The magnitude of the change was generally greater using RAP.

Discussion

The goals of this study were three: (a) to replicate earlier findings regarding the efficacy of RAP, (b) to demonstrate the effectiveness of VSM as a procedure for training aides in a residential facility for retarded children, and (c) to compare the relative effectiveness of both procedures. The first of these objectives was achieved. RAP was demonstrated to be an effective method of accelerating certain important responses in behavior modifier trainees. However, whereas all eight behaviors had been accelerated in

an earlier study using RAP, only five of seven were similarly affected in the current study.

The second objective was not clearly achieved. VSM increased the frequency of several of the behaviors, but the gains were small. The third objective of comparing RAP and VSM resulted in a generally superior performance for RAP.

The data for VSM were disappointing in view of its obvious economic superiority, and its demonstrated effectiveness in other investigations (e.g., Rule, 1972; Saudargas, 1972; Thomas, 1971). Consequently, a second study was undertaken to evaluate both procedures again.

During the study reported above, members of the training staff assiduously avoided any type of verbal feedback to trainees during the entire twelve sessions. We were interested in the effects of antecedent training events only. These restrictions were relaxed during the second study, with good performance receiving general praise, and questions freely answered.

A second change in procedure involved the timing of the VSM exposure. During the first study trainees viewed their performance immediately after completing a session. However, their next session did not take place until a day or two later. It is possible that any benefits of VSM for the subsequent session may have been lost during the inter-session interval. Thus, procedures were revised to permit viewing of the last session immediately prior to the subsequent one.

With these exceptions the second study was run identically to the first. Eight experienced psychiatric aides served as trainees. Though space does not permit a detailed account of the findings, the results were practically identical to those of the first study. Again, RAP was more effective than VSM.

Of course, the data in both studies were grouped and could obscure the possibility that some individual trainees responded better to one procedure

than the other. It is likely that the situation is even more complicated, with some behaviors of a trainee being more responsive to one procedure, others being more responsive to something else.

However, from the present data it would appear that instructing trainees in specific behaviors in the training situation is more generally useful than the less expensive but less direct VSM procedure. Future research is needed on various parameters of the RAP technique. What density of prompts is most effective in increasing behaviors? Is a gradual thinning of prompts more effective for maintenance than abrupt cessation? What criteria do behaviors need to reach in order to be maintained and generalized? What level of expertise is necessary in order to be an effective prompter?

The task of developing an effective behavior modifier training technology is a complex one. Perhaps significant progress in this area could be achieved by careful step-by-step analyses of important classes of variables suggested by the three-term conceptualization offered herein.

BEST COPY AVAILABLE

References

Cone, J. D., & Sheldon, S. S. Training behavior modifiers: Getting it going with remote auditory prompting. Proceedings, 81st Annual Convention, APA, 1973, 899-900.

Cone, J. D., & Sloop, E. W. Parents as agents of change. In A. Jacobs and W. W. Spradlin, (Eds.), Group as agent of change. New York: Behavioral Publications, in press.

Madsen, C. H., Jr., Becker, W. C., & Thomas, D. R. Rules, praise, and ignoring: Elements of elementary classroom control. Journal of Applied Behavior Analysis, 1968, 1, 139-150.

Pomerleau, O. F., Bobrove, P. H., & Smith, R. H. Rewarding psychiatric aides for the behavioral improvement of assigned patients. Journal of Applied Behavior Analysis, 1973, 6, 383-390.

Rule, S. A comparison of three different types of feedback on teachers' performance. In G. Semb, (Ed.), Behavior Analysis and Education --- 1972. Lawrence, Kansas: University of Kansas, Department of Human Development, 1972. Pp. 278-289.

Saudargas, R. A. Setting criterion rates of teacher praise: The effects of video tape feedback in a Behavior Analysis Follow Through Classroom. In G. Semb, (Ed.), Behavior Analysis and Education --- 1972. Lawrence, Kansas: University of Kansas, Department of Human Development, 1972. Pp. 253-261.

Thomas, D. R. Preliminary findings on self-monitoring for modifying teaching behaviors. In E. A. Ramp and B. L. Hopkins, (Eds.), A new direction for education: Behavior analysis 1971. Lawrence, Kansas: University of Kansas, Department of Human Development, 1971. Pp. 102-113.

BEST COPY AVAILABLE

Footnotes

[1]Paper presented at the 7th Annual Meeting of the Association for Advancement of Behavior Therapy, Miami, December, 1973.

[2]Grateful acknowledgment is made of the extensive cooperation provided the authors in the conduct of this study by the staff of Colin Anderson Center, St. Marys, West Virginia. Sandra Mattson was particularly helpful in scheduling all the events necessary to get the training going. Hilda Gault, Carol Millhouse, Margie Rankin, Bertie Freeman, and Charmaine Hedrick served long and reliably as raters.

Table 1

Mean 15-Second Intervals Per 5-Minute Block During Which Each Behavior Was Observed For Each Group For Each Phase of the Study

	Baseline		Training		Follow-up	
Behavior	Group I	Group II	Group I	Group II	Group I	Group II
			(RAP)	(VSM)		
Commanding	10.40	14.47	12.19	10.80	12.67	10.78
General Verbal Praising	4.84	6.62	7.19	7.05	6.73	6.36
Touch Reinforcing	2.78	4.75	5.13	5.73	5.09	6.95
			(VSM)	(RAP)		
Physical Prompting	4.66	5.54	6.19	5.98	6.36	8.02
Materially Reinforcing	2.85	4.07	2.98	5.38	2.25	4.10
Specific Verbal Praising	1.19	.60	2.54	5.65	2.75	5.34
Timing Out	.79	.39	.52	.56	.36	.46

BEST COPY AVAILABLE

BEST COPY AVAILABLE

BEST COPY AVAILABLE

Figure Captions

Figure 1. Mean number of 15-second intervals during which each behavior was observed per 5-minute block (3 per session) for baseline, RAP, and follow-up phases. RAP was introduced for three behaviors of Group I at the start of session four (top half of the figure), and for four other behaviors of Group II at the start of session seven (bottom half of the figure). RAP was discontinued during follow-up.

Figure 2. Mean number of 15-second intervals during which each behavior was observed per 5-minute block (3 per session) for baseline, VSM, and follow-up phases. VSM was introduced for three behaviors of Group II at the start of session four (top half of the figure), and for four other behaviors of Group I at the start of session seven (bottom half of the figure). VSM was discontinued during follow-up.

Figure 3. Mean number of 15-second intervals during which each of three behaviors was observed per 5-minute block (3 per session) for baseline, training and follow-up phases. Data for Group I (RAP) and II (VSM) are in the top and bottom halves of the figure, respectively.

Figure 4. Mean number of 15-second intervals during which each of four behaviors was observed per 5-minute block (3 per session) for baseline, training, and follow-up phases. Data for Groups II (RAP) and I (VSM) are in the top and bottom halves of the figure, respectively.

BEST COPY AVAILABLE

BEST COPY AVAILABLE

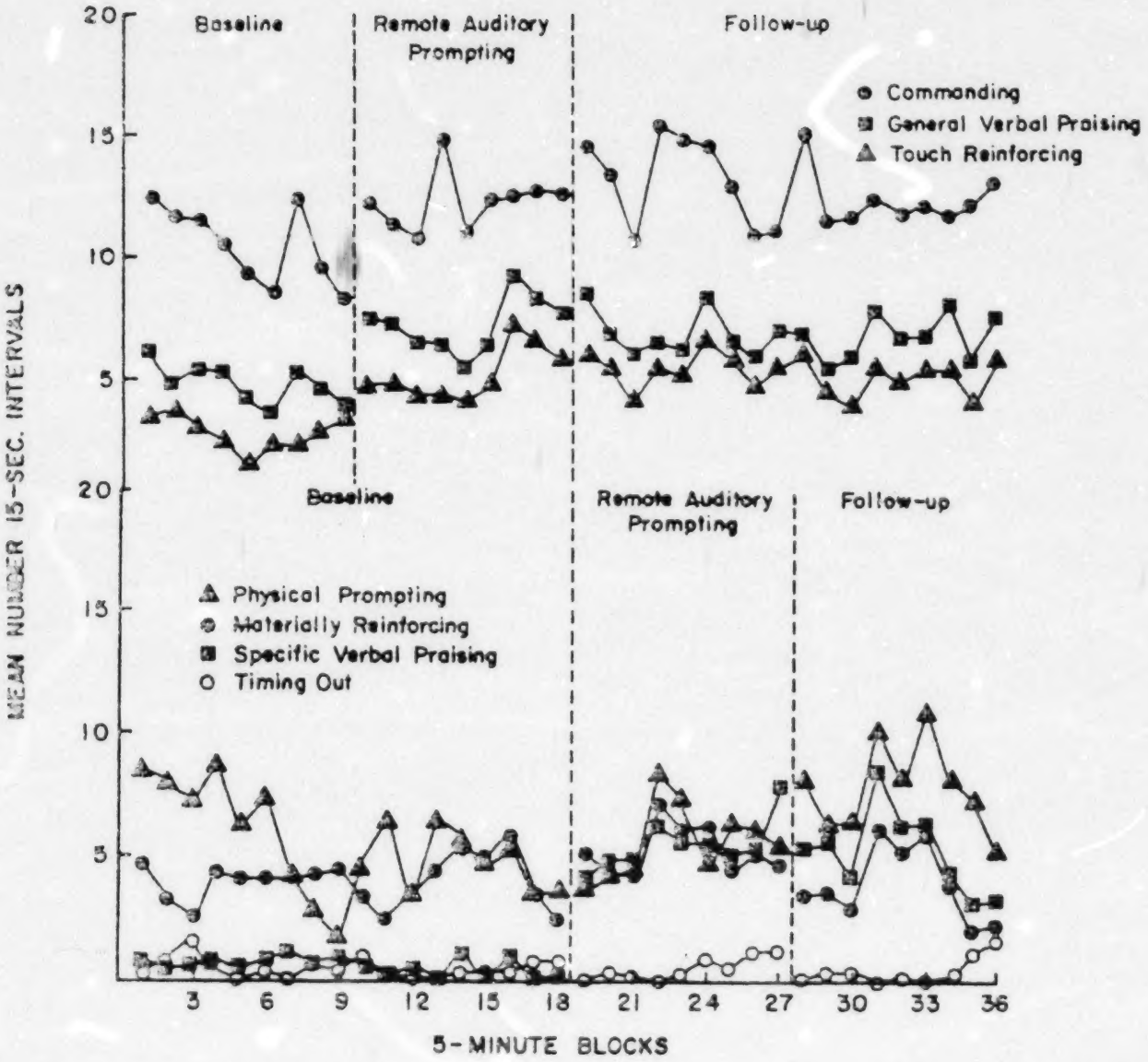

fig 1

BEST COPY AVAILABLE

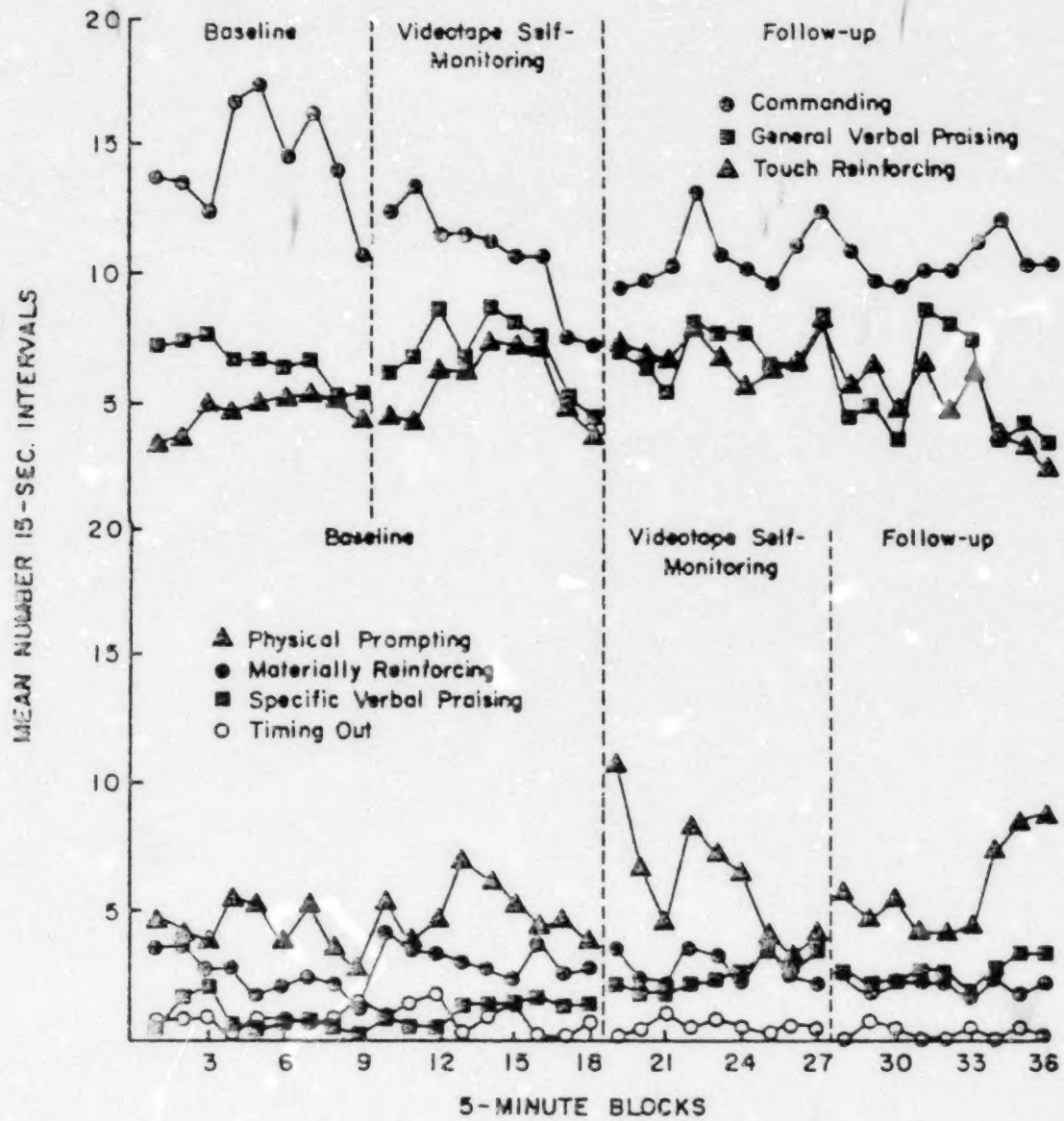

Fig 2

BEST COPY AVAILABLE

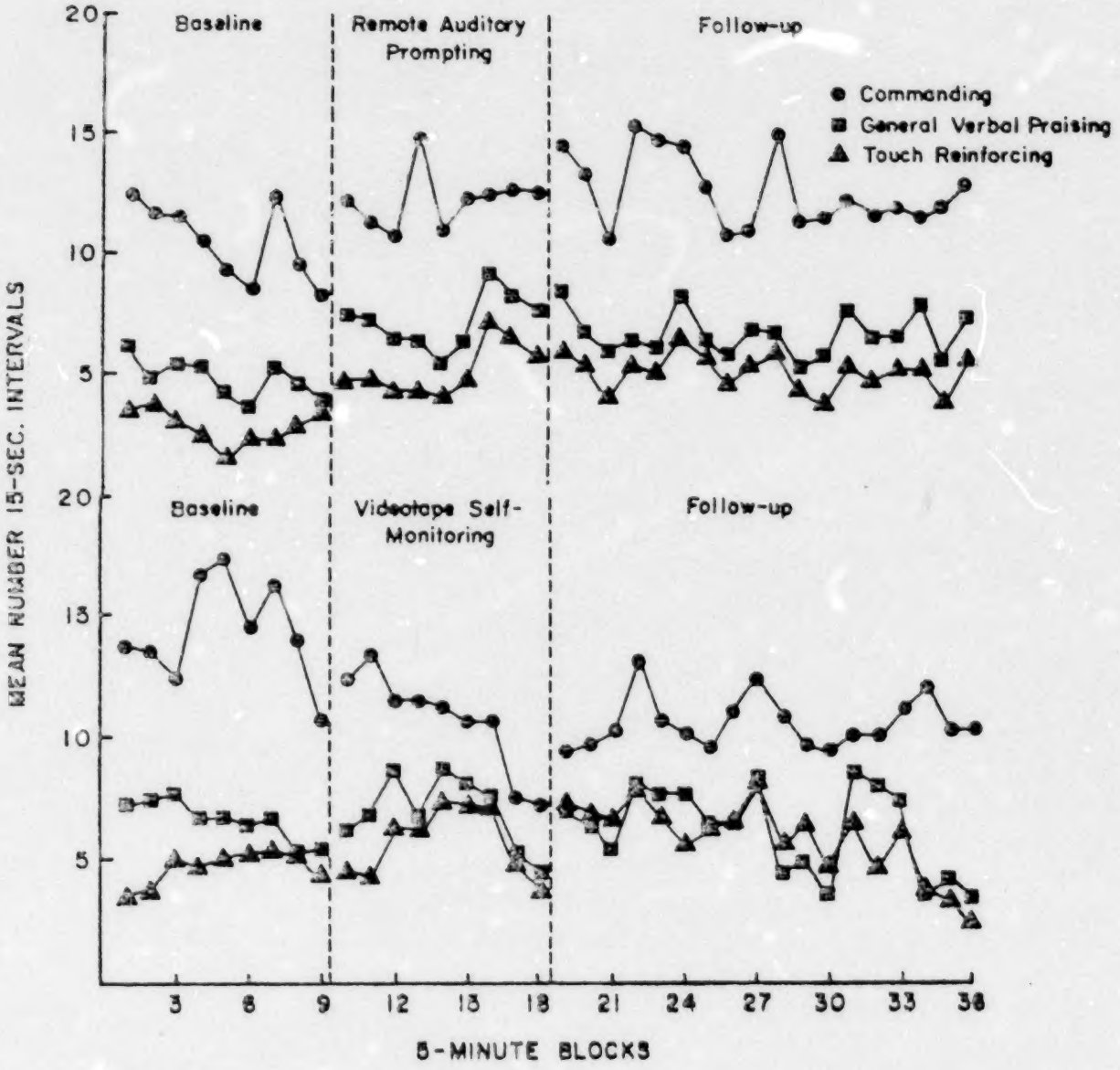

Fig 3

BEST COPY AVAILABLE

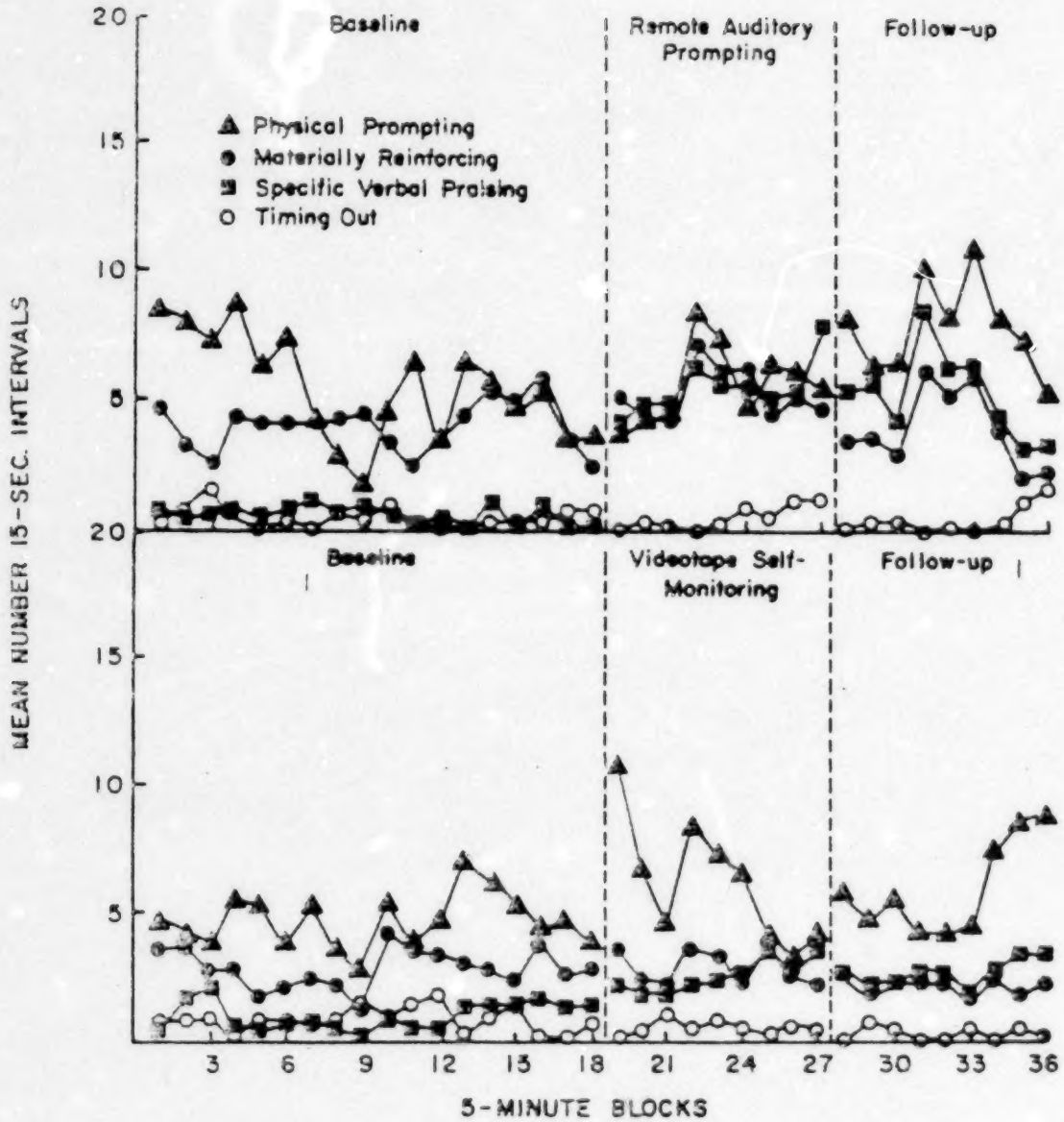

Fig 4